What is claimed is

1. A cartridge for securely holding a plurality of spaced-apart capillary tubes, which cartridge comprises

a frame for holding the tubes in a spaced-apart manner, wherein the frame has a pathway in which each capillary tube can be aligned; and

at least one region in the frame to expose at least a portion of each capillary tube so that an electromagnetic signal can contact a portion of each tube.

2. The cartridge of Claim 1, which further comprise a holder positioned with the frame for sealingly holding one end of each of the capillary tubes, the holder having a passageway therethrough for each capillary tube and a port for each passageway for suitably pumping fluid through each capillary tube.

3. The cartridge of Claim 1, wherein the port is suitable for attaching to a fluid source for pumping a fluid through the port.

4. The cartridge of Claim 1, wherein the holder also contains a chamber in fluid communication with each passageway of each capillary tube and connected to a single port.

5. The cartridge of Claim 4, wherein the holder is defined by a cap and a receptacle for sealingly holding one end of each of the capillary tubes such that the

cap in conjunction with the receptacle defines the chamber that (a) connects each of the capillary tube passageways in the receptacle to each other in fluid communication and (b) leads to the single port for attachment to a fluid source for pumping fluid through each capillary tube.

6. The cartridge of Claim 5, wherein the frame is designed to hold the capillary tubes in a radially spaced-apart manner so that the proximal ends of the capillary tubes held by the holder converge toward each other while the distal ends of the capillary tubes diverge from each other.

7. The cartridge of Claim 5, wherein the receptacle is flexible.

8. The cartridge of Claim 1, wherein the frame is substantially flat and the region for exposing at least a portion of each capillary tube comprises an opening that is accessible from both the front and back sides of the frame.

9. The cartridge of Claim 1, in combination with capillary tubes, wherein a sample can be introduced into at least one capillary tube, which sample can be subjected to a treatment selected from the group consisting of reacting with a reaction component, incubating for a period of time, washing with a fluid, optionally repeating any one of reacting, incubating, and washing; and any combination thereof.

10. The cartridge of Claim 1, wherein the frame has protective tabs extending beyond the frame in the capillary tube pathway distal from the holder to protect the distal ends of the capillary tubes from breakage.

11. A tray for holding multiple portions of a sample, which tray comprises

a reservoir sufficient to hold a quantity of fluid and

a shelf extending substantially perpendicularly outward from a sidewall of the reservoir, the shelf having a plurality of spaced-apart wells therein.

12. The tray of Claim 11, wherein the sample is selected from the group consisting of a fluid and a dry solid state material.

13. The tray of Claim 11, wherein at least one of the wells has a reagent therein so that a portion of a sample to be tested for an analyte can be placed in each well.

14. The tray of Claim 13, wherein the reagent is in a solid dry state and adheres to the well.

15. The tray of Claim 11, wherein at least one well has a retaining ridge at the well opening having a diameter smaller than that of the rest of well.

16. The tray of Claim 11, wherein at least one well has a metallic object held therein capable of being moved by a magnetic field.

17. The tray of Claim 11, wherein each metallic object is loosely held within each respective well such that it will not fall out when the receptacle is tipped upside down.

18. The tray of Claim 17, wherein the metallic object is held in place by a retaining ridge at the well opening having a diameter smaller than that of the rest of the well.

19. The tray of Claim 18, wherein the metallic object is a washer that is retained by the retaining ridge.

20. A process for screening for an analyte in a sample, which process comprises

importing a fluid mixture into a capillary tube coated on at least a portion of its interior surface with a substrate, wherein the fluid mixture comprises a sample suspected of containing the analyte and a reagent comprising a fluorescently-labeled conjugate that is

(a) capable of binding to the analyte or to the analyte and the substrate and

(b) capable of fluorescing when irradiated with an appropriate electromagnetic signal;

maintaining the fluid mixture in the capillary tube for a time sufficient for binding to take place between the substrate and the fluorescently-labeled conjugate;

removing excess fluid mixture from the capillary tube;

externally irradiating the coated portion of the capillary tube with an electromagnetic signal sufficient to cause fluorescence of bound fluorescently labeled conjugate; and

detecting the resulting fluorescence to screen for the analyte.

21. The process of Claim 20, wherein the capillary tube is dried prior to detecting the resulting fluorescence.

22. The process of Claim 21, wherein the capillary tube is dried by spinning the capillary tube on a centrifuge, which is designed to securely hold the capillary tube and spinning it for a sufficient time and at a sufficient speed to dry the capillary tube.

23. The process of Claim 22, wherein the capillary tube is held by a cartridge designed to fit and be securely held on said centrifuge.

24. The process of Claim 21, wherein the means to dry the capillary tube comprises aspirating the capillary tube with a stream of gas.

25. The process of Claim 20, wherein the binding in the capillary tube involves binding a fluorescently-labeled conjugate to the substrate of the interior surface of the capillary tube.

26. The process of Claim 25, wherein the electromagnetic signal is generated by a laser or a tungsten lamp.

27. The process of Claim 20, wherein the detected fluorescence is used to determine the amount of analyte present.

28. The process of Claim 20, wherein data reduction and data analysis of detected fluorescence is used to give a result.

29. The process of Claim 28, wherein the result of the process is presented as a digital display, a printout, a computer storable file, an output to an external device, or any combination of the foregoing.

30. The process of Claim 27, wherein data reduction and data analysis of detected fluorescence is used to give a result.

31. An apparatus for screening for at least one analyte in a sample, which apparatus comprises

a reservoir for a fluid;

a conduit to transport the fluid to a port;

the port being positioned to draw the sample thereto and to pump fluid therethrough;

a means to draw at least a portion of the sample to the port;

a means to pump the fluid through the port;

a first section having connecting means for a cartridge holding at least one capillary tube so that one end of the capillary tube is in fluid communication with the port;

a second section having means to hold a tray having at least one well to communicate with the other end of the capillary tube, the second section also having a means to create a changing magnetic field so that a magnetizable metallic

object held within the well of the tray is moved sufficiently to agitate a sample when placed in the well;

a means to hold the cartridge and capillary tube to permit the capillary tube to be exposed to a signal generation means;

the signal generation means; and

a signal detection means positioned to detect a signal emitted from the capillary tube as a result of exposure to the signal from the signal generation means.

32. The apparatus of Claim 31, wherein the capillary tube is dried while in the cartridge, which drying occurs prior to detection of the emitted signal.

33. The apparatus of Claim 32, wherein the means to dry the capillary tube comprises a centrifuge with a means to secure and spin the cartridge for a sufficient time and at a sufficient speed to dry the capillary tube, wherein the means to secure and spin the cartridge is arranged such that each capillary tube can be positioned in the path of the signal generation means so that the signal detection means can collect the emitted signal.

34. The apparatus of Claim 32, wherein the means to dry the capillary tube comprises aspirating the capillary tube with a stream of gas.

35. The apparatus of Claim 31, wherein the cartridge comprises

a frame for holding a plurality of capillary tubes in a spaced-apart manner;

at least one region in said frame to expose at least a portion of each capillary tube to enable a signal from the signal generating means to contact a portion of each tube; and

a holder located in the frame for sealingly holding one end of each of the capillary tubes and designed so that fluid can pass therethrough.

36. The apparatus of Claim 35, wherein the holder is defined by a cap and a receptacle such that the cap in conjunction with the receptacle defines a chamber that connects each of the capillary tubes to each other in fluid communication and leads to a chamber port that can be associated with the first port.

37. The apparatus of Claim 31, wherein the tray comprises,

a reservoir sufficient to hold a quantity of fluid,

a shelf for holding multiple portions of a sample, the shelf having a plurality of spaced-apart wells therein, at least one of the wells having a reagent therein so that a portion of a sample to be tested for an analyte can be placed in each well.

38. The apparatus of Claim 37, wherein at least one well in the tray has a metallic object held therein for mixing the contents of the well by creating an oscillating magnetic field under the well.

39. The apparatus of Claim 31, wherein the signal generation means is selected from the group of a laser and a tungsten lamp.

40. The apparatus of Claim 39, wherein the signal detection means comprises a fluorescence detector.

41. The apparatus of Claim 31, wherein the amount of the analyte is determined from the signal emitted from the capillary tube.

42. The apparatus of Claim 31, wherein data analysis of the signal emitted from the capillary tube is used to give a result.

43. The apparatus of Claim 42, wherein the apparatus also includes a data presentation means that comprises a digital display, a printout, a computer storable file, an output to an external device, or any combination of the foregoing.

44. The apparatus of Claim 41, wherein data analysis of the signal emitted from the capillary tube is used to give a result.

45. A combination of a cartridge holding at least one capillary tube, which combination comprises

a capillary tube coated on at least a portion of its interior surface with a substrate that is capable of binding to a fluorescently-labeled conjugate and

a frame comprising a means for positioning the capillary tube in an exposure region of the frame, wherein the exposure region permits exposure of at least a portion of the coated capillary tube to an external electromagnetic signal that is capable of causing bound fluorescently-labeled conjugate to fluoresce.

46. A capillary tube comprising a substrate on at least a portion of its interior surface, which substrate is capable of being bound to a fluorescently-labeled conjugate.

47. The capillary tube of Claim 46, wherein the tube is glass and the substrate comprises a silane-based material bound to said portion of the interior surface of the capillary tube.

48. The capillary tube of Claim 47, wherein a protein conjugate is bound to the silane-based material.

49. The capillary tube of Claim 48, wherein the protein conjugate comprises bovine serum albumin or human serum albumin.

50. The capillary tube of Claim 49, wherein the protein conjugate comprises bovine serum albumin conjugated to biotin.

51. The capillary tube of Claim 50, wherein the protein conjugate comprises neutravidin-4-amino-penicillinic acid bound to the bovine serum albumin-biotin conjugate.

52. The capillary tube of Claim 51, wherein the protein conjugate comprises neutravidin-ceftiofur bound to the bovine serum albumin-biotin conjugate.

53. The capillary tube of Claim, 49, wherein the protein conjugate comprises bovine serum albumin conjugated to cephapirin.

54. The capillary tube of Claim 47, wherein the silane-based material is represented by the formula

$$R\text{-}Si(OR_1)_3$$

wherein

R is an alkyl or alkenyl of about 12 to about 20 carbon atoms

and

R_1 is an alkyl of one to four carbon atoms.

55. The capillary tube of Claim 54, wherein R is a straight chain alkyl of 18 carbon atoms and R_1 is ethyl, namely octadecyltriethoxy silane.

56. A process for preparing a glass capillary tube for use in a fluorescent immunoassay, which process comprises

coating at least a portion of the internal surface of the capillary tube with a substrate that is capable of binding to a fluorescently-labeled conjugate.

57. The process of Claim 56, wherein the coating step further comprises

coating at least a portion of the interior surface of the capillary tube with a silane-based material and further comprises

binding a protein conjugate to the silane-based material, which conjugate is capable of binding to a fluorescently-labeled conjugate.

58. The process of claim 57, wherein the protein conjugate comprises bovine serum albumin or human serum albumin.

59. The process of Claim 58, wherein the protein conjugate comprises bovine serum albumin conjugated to biotin.

60. The process of Claim 59, wherein the protein conjugate comprises neutravidin-4-amino-penicillinic acid bound to the bovine serum albumin-biotin conjugate.

61. The process of Claim 60, wherein the protein conjugate comprises neutravidin-ceftiofur bound to bovine serum albumin-biotin conjugate.

62. The process of Claim 58, wherein the protein conjugate comprises bovine serum albumin conjugated to cephapirin.

63. The process of Claim 57, wherein the silane-based material is represented by the formula

$$R\text{-}Si(OR_1)_3$$

wherein

R is an alkyl or alkenyl of about 12 to about 20 carbon atoms

and

R_1 is an alkyl of one to four carbon atoms.

64. The process of Claim 63, wherein R is a straight chain alkyl of 18 carbon atoms and R_1 is ethyl, namely octadecyltriethoxy silane.